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SYSTEMS AND METHODS FOR INTERACTING WITH
VIRTUAL OBJECTS IN A HAPTIC VIRTUAL REALITY ENVIRONMENT

Abstract of the Disclosure

A user of a modeling application uses a haptic interface device in the real world to manipulate a virtual tool in a virtual environment to interact with a virtual object. The user can use the tool to evaluate the shape of the virtual object and navigate its virtual surface, based on an interactive force feedback approach.

- 5 When the user attempts to penetrate the virtual object with the virtual tool, a modeling application limits the movement of the virtual tool depending on the geometry of the surface, the position of the virtual tool, and a haptic interface location in the virtual environment, which represents the physical location of the haptic interface device in the real world. The user can evaluate different
- 10 geometries of the virtual surface, including an edge geometry, such as occurs when the virtual tool is touching or moving along an edge of the virtual object.

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